IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	**Confirmation No. 3480**
Mitsuru IWASAKI et al.	:	Attorney Docket No. 2003_1505A
Serial No. 10/694,088	:	Group Art Unit 3618
Filed October 28, 2003	:	Examiner Vaughn Coolman
AUTOMOTIVE HEAT EXCHANGING SYSTEM		**Mail Stop: AF**

PATENT OFFICE FEE TRANSMITTAL FORM

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Attached hereto is a check in the amount of $500.00 to cover Patent Office fees relating to filing the following attached papers:

Appeal Brief $500.00

A duplicate copy of this paper is being submitted for use in the Accounting Division, Office of Finance.

Please note that no extension fee is being submitted herewith, as it is submitted that no extension of time is necessary in view of the remarks submitted on April 24, 2007.

The Commissioner is authorized to charge any deficiency or to credit any overpayment associated with this communication to Deposit Account No. 23-0975, with the EXCEPTION of deficiencies in fees for multiple dependent claims in new applications.

THE COMMISSIONER IS AUTHORIZED TO CHARGE ANY DEFICIENCY IN THE FEES FOR THIS PAPER TO DEPOSIT ACCOUNT NO. 23-0975

Respectfully submitted,

Mitsuru IWASAKI et al.

THE COMMISSIONER IS AUTHORIZED TO CHARGE ANY DEFICIENCY IN THE FEES FOR THIS PAPER TO DEPOSIT ACCOUNT NO. 23-0975

By _____
W. Douglas Hahm
Registration No. 44,142
Attorney for Applicants

WDH/akl
WENDEROTH, LIND & PONACK, L.L.P.
2033 K St., N.W., Suite 800
Washington, D.C. 20006-1021
Telephone (202) 721-8200
May 23, 2007

[Check No. 80572]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	**Confirmation No. 3480**
Mitsuru IWASAKI et al.	:	Attorney Docket No. 2003_1505A
Serial No. 10/694,088	:	Group Art Unit 3618
Filed October 28, 2003	:	Examiner Vaughn Coolman
AUTOMOTIVE HEAT EXCHANGING SYSTEM		**Mail Stop: AF**

THE COMMISSIONER IS AUTHORIZED TO CHARGE PAYMENT OF FEES AND CREDIT TO DEPOSIT ACCOUNT NO. 23-0975

APPEAL BRIEF FILED UNDER 37 CFR § 41.37

Assistant Commissioner for Patents,

Sir:

The following is the Appellant's Brief, submitted in accordance with the provisions of 37 CFR 41.37.

Real Party in Interest

The real party in interest is Calsonic Kansei Corporation, the assignee of the present application.

Related Appeals and Interferences

There are no known related appeals, interferences, or judicial proceedings.

Status of Claims

Claims 1-18 are presently pending in this application, but claims 2, 3, and 5-16 have been withdrawn. Independent claim 1 was last amended in a response filed April 14, 2006, and the dependent claims were not amended in that response. In a final Office Action dated July 24, 2006, the Examiner rejected elected pending claims 1, 4, 17, and 18 in view of the prior art, and

these rejections are appealed. A complete copy of all of the claims involved in this appeal is provided in the attached Claims Appendix.

Status of Amendments

No amendments subsequent to the final Office Action of July 24, 2006 have been submitted.

Summary of the Claimed Subject Matter

An explanation of the subject matter recited in the pending elected claims will now be provided with reference to various portions of the present application. In this regard, any reference to the specification refers to the substitute specification filed September 23, 2005.

Independent claim 1 is directed to an automotive heat exchanging system as generally illustrated in Figure 3. Specifically, the system includes a heat exchanger 3 mounted at the front of an engine 11 and an automatic transmission 12, and the heat exchanger 3 is to be supplied with a coolant. An electric fan 4 is located at the front of the automatic transmission 12 and is operable to ensure airflow through the heat exchanger 3 (see paragraph [0035], page 7, lines 14-17 of the specification). A shroud 5 is attached to and covers peripheral portions of the electric fan 4 and the heat exchanger 3 to form an air passage 6 inside of the shroud 5 for allowing airflow through the heat exchanger 3 to flow toward the automatic transmission 12. A shutter 7 is arranged in the shroud 5 and has a periphery attached to the shroud 5, and the shutter 7 is operable to open and close the air passage 6 (see paragraph [0042], page 9, lines 1-8 of the specification).

As illustrated in the schematic diagram of Figure 4, the automotive heat exchanging system of independent claim 1 further comprises an automatic transmission oil temperature sensor 25 for sensing a temperature of oil TO in the automatic transmission 12, and for outputting an automatic transmission oil temperature signal (see paragraph [0050], page 10, line 24 through page 11, line 1 of the specification). In addition, a controller 22 controls opening and closing of the shutter 7 based on the automatic transmission oil temperature signal received from

the automatic transmission oil temperature sensor 25 so as to control the temperature of the oil TO in the automatic transmission 12 (see paragraph [0059], page 13, lines 2-5 of the specification; paragraphs [0066] and [0067], page 14, lines 6-13 of the specification; and paragraph [0070], page 14, line 24 through page 15, line 18 of the specification).

The present invention as recited in independent claim 1 and discussed above has been developed in order to improve clutch performance in automatic transmissions. Specifically, clutch performance in automatic transmissions is conventionally controlled based on *engine* temperature, rather than *transmission oil* temperature, and engine temperature often varies significantly from transmission oil temperature (see paragraphs [0008] through [0013]; page 2, line 22 through page 4, line 1 of the specification). Therefore, conventional automatic transmissions will often operate with low transmission oil temperatures, thereby reducing performance and fuel efficiency due to high viscosity. The present invention of independent claim1 addresses this problem by providing a controller operable to control opening and closing of the shutter based on the automatic transmission oil temperature signal so as to control the temperature of the *oil in the automatic transmission.* Consequently, operation of the shutter can be controlled more precisely with respect to the automatic transmission, so that fuel consumption can be greatly improved due to proper automatic transmission oil viscosity.

As further illustrated in Figure 3 and recited in dependent claim 18, the shroud 5 has a front end, a rear end, side walls connecting the front end and the rear end, and an opening 13 formed in the side walls to allow air to flow out of the air passage 6 inside of the shroud 5 (see paragraph [0042], page 9, lines 6-8 of the specification).

Grounds of Rejection to be Reviewed on Appeal

Independent claim 1 stands rejected as being unpatentable under 35 USC 103(a) over U.S. Patent 4,756,279 (the "Temmesfeld reference") in view of U.S. Patent 5,090,270 (the "Suzuki reference"); dependent claim 4 stands rejected as being unpatentable under 35 USC 103(a) over the Temmesfeld reference in view of the Suzuki reference, and further in view of U.S. Patent 4,476,820 (the "Nixon reference"); and dependent claims 17 and 18 stand rejected as

being unpatentable under 35 USC 103(a) over the Temmesfeld reference in view of the Suzuki reference, and further in view of U.S. Patent 4,539,943 (the "Tsuchikawa reference").

Argument

Independent Claim 1 is Patentable Over the Combination of the Temmesfeld Reference and the Suzuki Reference

As clearly established in the Manual of Patent Examining Procedure (MPEP) Chapter 2143, in order to establish a *prima facie* case of obviousness, the combination of prior art references must teach or suggest **all** of the claim limitations. In the present case, however, the combination of prior art does not teach or suggest the following component:

> "[A] controller for controlling opening and closing of said ***shutter*** *based on the automatic transmission oil temperature signal received from said automatic transmission oil temperature sensor so as to control the temperature of* ***the oil in said automatic transmission***."

In the Advisory Action issued November 15, 2006, the Examiner stated that "Applicant continues to argue against the references individually, when it is the combination that renders the claim limitations obvious." In contrast to the Examiners apparent interpretation of the Applicant's arguments, however, the Applicant has not attempted to argue against the references individually. Instead, the Applicants have continually argued that the *combination* of the references, including the Temmesfeld reference and the Suzuki reference, does not teach the component noted above in combination with the remaining claimed components. Although the Applicants acknowledge that it is necessary to discuss each of the references individually in an effort to fully explain and support their position, the Applicants again submit that the combination of references applied by the Examiner does not teach or suggest the automotive heat exchanging system as recited in independent claim 1, for the reasons explained below.

The Temmesfeld reference teaches an arrangement for an air cooling system of an air cooled internal combustion engine. In particular, the Temmesfeld reference teaches a rolling curtain 4 and a support screen 5 which are controlled based on operating parameters of the *engines*. In this regard, the Examiner has noted that the Temmesfeld reference teaches that the rolling curtain is automatically controllable when, for example, a high value of a "component" temperature is reached (see column 3, lines 45-50). However, the Temmesfeld reference does not explain or suggest *how* such control would occur. Even assuming that the "component" is an automatic transmission, control of an automatic transmission has conventionally been achieved based on *engine* temperature, which provides inadequate results (see Summary of Claimed Subject Matter, above). Moreover, the Examiner acknowledged that the Temmesfeld reference does not teach an oil temperature sensor (see bottom of page 2 of Office Action of July 24, 2006), much less an *automatic transmission* oil temperature sensor. Therefore, the Temmesfeld reference also does not disclose or suggest a controller for controlling opening and closing of a ***shutter*** *based on an automatic transmission oil temperature signal received from an automatic transmission oil temperature sensor so as to control the temperature of the* ***oil in the automatic transmission***.

Nonetheless, the Examiner asserted that the Suzuki reference provides the necessary teaching to motivate one of ordinary skill in the art to modify the Temmesfeld reference so as to obtain the invention recited in independent claim 1. In particular, the Examiner noted that the Suzuki reference teaches an oil temperature sensor 23 which controls the opening and closing of a *solenoid valve 19 in a hydraulic fluid bypass passage 18* (see Figure 3). At the bottom of page 4 of the final Office Action, the Examiner asserted that "Suzuki teaches the use of an oil temperature sensor to activate electro-mechanical systems *in order to control the temperature of the oil in an automatic transmission.*" However, this interpretation of the Suzuki reference is incorrect. Therefore, because this misunderstanding of the Suzuki reference appears to be at least one reason for the Examiner's improper rejection of the claims, a detailed discussion of the Suzuki reference will be provided below.

The Suzuki reference generally discloses a conventional automatic transmission including a low clutch and a fixed orifice located in the hydraulic fluid supply line to the low clutch. In order to avoid N-D select shock, the size of the fixed orifice is reduced. Unfortunately, as explained in column 1, lines 35-42 of the Suzuki reference, the reduced size of the fixed orifice causes the charging time of the accumulator of the low clutch (located downstream of the fixed orifice) to become excessively long, thereby causing erratic performance. In other words, the amount of time required to fill (i.e., charge) the accumulator of the low clutch becomes excessively long due to the slow flow rate of the hydraulic fluid through the small fixed orifice.

This problem is increased when the temperature of the oil decreases. As explained in column 5, lines 10-15, the viscosity of the transmission oil (hydraulic fluid) will increase as the temperature of the transmission oil decreases. Therefore, the time necessary for the transmission oil to flow through the smaller fixed orifice 13 will further increase, thereby significantly reducing performance. To address this problem, information regarding the temperature of the transmission oil is obtained by the transmission oil temperature sensor 23, and is sent to a controller 20 (see column 5, lines 24-28). If the temperature of the transmission oil is below a predetermined temperature, the controller 20 will then open the solenoid valve 19 so as to allow the transmission oil with the higher viscosity to flow through *both* the bypass passage 18 *and* through the fixed orifice 13. As a result, the transmission oil will fill the clutch accumulator 14 in a reasonable amount of time, despite the decreased temperature of the oil and resulting increased viscosity (see column 5, lines 46-58).

In the Advisory Action of November 15, 2006, the Examiner attempted to reconcile the above-discussed teachings of the Suzuki reference with his previously-stated prior art rejections by noting that "one cannot 'control' the mass flow rate or the area of fluid flow without also indirectly controlling the temperature of the operating fluid." Thus, using this canon of thermodynamics, the Examiner concluded that the Suzuki reference teaches controlling the temperature of the transmission oil *indirectly*. However, while recognizing that there might be some temperature variation side-effect caused by the flow control of the Suzuki reference, it is clear that the controller 20 of the Suzuki reference simply *compensates for* a low temperature of

the transmission oil by opening the solenoid valve 19 to increase an amount of flow area, but does not *control the temperature of the oil* in the automatic transmission. In any case, this possible *indirect* temperature control side effect (which is not even mentioned in the Suzuki reference) certainly would not provide a suggestion to one of ordinary skill in the art to modify the Temmesfeld reference to provide a controller operable to open and close a shutter based on the temperature of the automatic transmission oil so as to control the temperature of the automatic transmission oil.

The differences discussed above are clearly seen in a comparison of the controller of the present invention and the controller obtained by the hypothetic combination of the Temmesfeld reference and the Suzuki reference, as shown below.

Present Invention of Independent Claim 1: A controller for controlling opening and closing of a ***shutter*** arranged in a shroud forming an air passage for allowing air to flow toward an automatic transmission, based on an automatic transmission oil temperature signal received from an automatic transmission oil temperature sensor **so as to control the temperature of the oil in said automatic transmission**.

Temmesfeld/Suzuki Reference: A controller for controlling opening and closing of a **solenoid bypass valve** arranged in a hydraulic fluid bypass line, based on an automatic transmission oil temperature signal received from an automatic transmission oil temperature sensor so as to **compensate for** the temperature of the oil in the automatic transmission (i.e., increase the flow area for the oil due to low temperature/increased viscosity).

In view of the above, it is clear that the automatic solenoid bypass valve of the Suzuki reference provides no suggestion, and thus absolutely no reason, to modify the rolling curtain of the Temmesfeld reference to obtain the automotive heat exchanging system recited in claim 1.

Because the distinctions between the present invention of independent claim 1 and the applied prior art appear clear as noted above, the Applicant is concerned that the Examiner might be ignoring or disregarding limitations recited in the claim. Specifically, on page 5 of the final Office Action of July 24, 2006, the Examiner made a statement that appears to indicate that the

Examiner has given very little, if any, patentable weight to the functional language recited in independent claim 1 which describes the arrangement of the controller. In this regard, it is well established that functional language is an additional limitation in a claim, and should be given patentable weight, at least to the extent that the functional language describes the structural arrangement of claimed components. See *Wright Med. Tech., Inc. v. Osteonics Corp.*, 122 F.3d 1440, 1443-44, 43 USPQ 2d 1837, 1840 (Fed. Cir. 1997).

In the present case, the functional language at issue is used to describe the structural relationship between the controller, the shutter, and the transmission oil temperature sensor. In particular, independent claim 1 requires a controller which is connected to a *shutter* so as to be able to open and close the shutter, and the controller must be connected to the automatic transmission oil temperature sensor so as to be able to receive the automatic transmission oil temperature signal from the automatic transmission oil temperature sensor. Furthermore, the controller must have a structure which allows it to analyze the automatic transmission oil temperature signal, and then open or close the shutter based on the automatic transmission oil temperature signal so as to control the temperature of the oil of the automatic transmission. In other words, the controller limitation recited in independent claim 1 does not describe an intended use of the controller, but instead describes a physical relationship and features which are entitled to patentable weight.

As explained above, the Temmesfeld reference and the Suzuki reference do not, either alone or in combination, disclose or suggest a controller with the physical relationship to a shutter and an automatic transmission oil temperature sensor as set forth in claim1. In particular, these references do not teach or suggest a controller for controlling opening and closing of a *shutter* based on an automatic transmission oil temperature signal received from an automatic transmission oil temperature sensor *so as to control temperature of the oil in the automatic transmission*. In this regard, the Temmesfeld reference teaches no particular controller, and the controller of the Suzuki reference cannot open and close a shutter, and is not capable (due to its structure or arrangement) of *controlling* a temperature of transmission oil, but instead merely compensating for the temperature. Accordingly, it is respectfully submitted that independent

claim 1 and the claims that depend therefrom are clearly patentable over the combination of the Temmesfeld reference and the Suzuki reference.

Dependent Claim 4 is Patentable Over the Combination of the Temmesfeld Reference, the Suzuki Reference, and the Nixon Reference

By definition, dependent claim 4 includes all of the limitations of independent claim 1 from which it depends. Therefore, because the Nixon reference does not correct the deficiencies of the Temmesfeld reference and the Suzuki reference noted above, it is submitted that dependent claim 4 is also patentable over the prior art of record for the reasons discussed above with respect to independent claim 1.

Dependent Claims 17 and 18 are Patentable Over the Combination of the Temmesfeld Reference, the Suzuki Reference, and the Tsuchikawa Reference

By definition, dependent claims 17 and 18 include all of the limitations of independent claim 1 from which they depends. Therefore, because the Tsuchikawa reference does not correct the deficiencies of the Temmesfeld reference and the Suzuki reference noted above, it is submitted that dependent claims 17 and 18 are also patentable over the prior art of record for the reasons discussed above with respect to independent claim 1.

Furthermore, it is noted that dependent claim 18 requires that the shroud have sidewalls connecting the front end and the rear end, and an *opening* formed in the sidewalls to allow air to flow out of the air passage inside of the shroud. In the final Office Action of July 24, 2006, the Examiner simply noted that the Tsuchikawa reference teaches a shroud 4 with sidewalls, but did not address how the Tsuchikawa reference or any of the other applied references teach the opening in the sidewall as recited in claim 18. Because the applied references of record do not teach or suggest a shroud having sidewalls and an opening in the sidewalls as required by claim 18, it is submitted that this feature provides a further reason for patentability of claim 18.

Conclusion

As noted above, the combination of the Temmesfeld reference and the Suzuki reference does not disclose or even suggest a controller with the physical relationship and features as set forth in claim1. Thus, it is respectfully submitted that independent claim 1 is clearly patentable over the prior art of record, and the Board of Appeals is respectfully requested to reverse the Examiner's prior art rejections set forth in the final Office Action of July 24, 2006.

Respectfully submitted,

Mitsuru IWASAKI et al.

By:_____

W. Douglas Hahm
Registration No. 44,142
Attorney for Applicants

WDH/akl
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
May 23, 2007

CLAIMS APPENDIX - Claims on Appeal (Appeal - Application Serial No. 10/694,088)

1. An automotive heat exchanging system comprising:

a heat exchanger mounted at a front of an engine and an automatic transmission and to be supplied with a coolant;

an electric fan located at the front of said automatic transmission and operable to ensure airflow through said heat exchanger;

a shroud attached to and covering peripheral portions of said electric fan and said heat exchanger to form an air passage inside of said shroud for allowing airflow through said heat exchanger to flow toward said automatic transmission;

a shutter arranged in said shroud and having a periphery attached to said shroud, said shutter being operable to open and close said air passage;

an automatic transmission oil temperature sensor for sensing a temperature of oil in said automatic transmission and for outputting an automatic transmission oil temperature signal; and

a controller for controlling opening and closing of said shutter based on the automatic transmission oil temperature signal received from said automatic transmission oil temperature sensor so as to control the temperature of the oil in said automatic transmission.

4. The automotive heat exchanging system of claim1, wherein said electric fan is located at a rear of said heat exchanger, and said shutter is located at a rear of said electric fan.

17. The automotive heat exchanging system of claim 1, wherein said heat exchanger comprises a condenser and a radiator at a rear of said condenser.

18. The automotive heat exchanging system of claim 1, wherein said shroud has a front end, a rear end, sidewalls connecting said front end and said rear end, and an opening formed in said sidewalls to allow air to flow out of said air passage inside of said shroud.

EVIDENCE APPENDIX (Appeal - Application Serial No. 10/694,088)

No evidence has been submitted and relied upon by the Appellant.

RELATED PROCEEDINGS APPENDIX (Appeal - Application Serial No. 10/694,088)

As noted above, there are no known related appeals, interferences, or judicial proceedings.